

REMARKS

After entry of this amendment, claims 1-29 remain pending. In the present Office Action, claims 1-29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Olmstead et al., U.S. Patent Application Publication No. 2004/0049573 ("Olmstead") in view of Vessey et al., U.S. Patent Application Publication No. 2003/0037178 ("Vessey"), Novaes et al., U.S. Patent No. 7,325,046 ("Novaes"), and, for some dependent claims, Lim et al., U.S. Patent No. 6,795,966 ("Lim") or Vert et al., U.S. Patent No. 6,360,331 ("Vert"). Applicant respectfully traverses these rejections and requests reconsideration.

Applicant respectfully submits that claims 1-29 recite combinations of features not taught or suggested in the cited art. For example, claim 1 recites a combination of features including: "replicate the checkpoint segment from a first local storage of a first node to at least one other node ... wherein the checkpoint segment is stored into the first local storage by the application."

The Office Action asserts that Olmstead teaches "storing the checkpoint segment in the first local storage by the application", citing paragraph [0016]. Applicant respectfully disagrees. Olmstead teaches "The messaging service can also provide data between various applications running on the nodes. This allows the applications to checkpoint their state (save a copy of their memory along with the current registry settings)..." (Olmstead, paragraph [0016]). Thus, Olmstead teaches using the messaging service to communicate data between the nodes to checkpoint the application's state (which can include a copy of the application's memory and the registry settings). Olmstead does not teach or suggest the application checkpointing state to local storage, but rather to a remote node. See also Olmstead paragraph [0058]: "The backup manager enables the cluster management service to respond to failures quickly since it has access to the checkpoint data from the cluster manager." Thus, Olmstead teaches that the checkpoint data is stored on the cluster manager, not a local storage, by the application (using the messaging service to transmit the data).

The Office action asserts that Vessey teaches "replicating the checkpoint segment

from a first local storage of a first node to at least one other node" after Olmstead stores the checkpoint data in the local storage. However, as highlighted above, Olmstead does not teach storing the checkpoint data in the local storage. One of skill in the art would not be motivated to store the checkpoint data in local storage first and then to replicate the checkpoint to another node based on the teachings of Olmstead and Vessey, since Olmstead teaches checkpointing to another node by the application. There would be no reason to employ the teachings of Vessey in Olmstead. To further highlight this distinction, Applicant has amended claim 1 to recite that the "first local storage is directly accessible only to the first node."

Additionally, Applicant has amendment claim 1 to recite that the application is separate from the checkpoint service (that performs the replication). In Vessey, the application both builds the message in its local storage and moves the message into the shared storage (that is accessible to the other partitions. See Vessey, paragraph [0237]: "the sending entity builds the message in a buffer in its local memory space in the same manner as would occur if the message were being built to be transferred via a network. The sending entity then copies part, or all, of the message, into its allocated part of shared memory 160." Accordingly, the combination of Olmstead and Vessey does not teach or suggest the application and separate checkpoint service as recited in claim 1. Noveas does not teach or suggest these features, either, and thus the combination of Olmstead, Vessey, and Noveas does not teach or suggest the above highlighted features.

Furthermore, claim 1 recites a combination of features including: "receive a request to register a checkpoint segment from an application that is separate from the checkpoint service" and "replicate the checkpoint segment from a first local storage of a first node to at least one other node responsive to the application registering the checkpoint segment with the checkpoint service." With regard to claim 27, the Office Action asserts that Vert teaches registering the application registering the checkpoint segment (see Office Action, page 9, item 34). Applicant respectfully disagrees. Vert teaches a mechanism that is transparent to the application, which monitors the application's changes to the registry and checkpointing the changes transparently to the

application. See Vert abstract. See also Vert, col. 2, lines 25-35: "Briefly, the present invention transparently fails over a legacy application by tracking and checkpointing changes to application configuration information that is stored locally, such as in a system's local registry. When an application running on the first system makes a change to the application configuration information in a subtree of the registry, the change is detected by a notification mechanism. A snapshot mechanism is notified, takes a snapshot of the subtree's data, and causes it to be written to a storage device shared by systems of the cluster." Thus, Vert uses a notification mechanism external to the legacy code to detect the local modification and to write the modification to the shared storage device.

For at least the above stated reasons, Applicant submits that claim 1 is patentable over the cited art. Claims 2-12 and 26-27 depend from claim 1 and recite additional combinations of features not taught or suggested in the cited art. Claims 13 and 24 recite combinations of features including features similar to those highlighted above with regard to claim 1. The same teachings of the cited art highlighted above are alleged to teach the features of claims 13 and 24. Accordingly, claims 13 and 24 are also patentable over the cited art for at least the reasons stated above. Claims 14-23 and 28-29 depend from claim 13 and recite additional combinations of features not taught or suggested in the cited art. Claim 25 depends from claim 24 and recites an additional combination of features not taught or suggested in the cited art.

CONCLUSION

Applicant submits that the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5760-13100/LJM.

Respectfully submitted,

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